BRIEF COMMUNICATIONS

Becoming green and sustainable: a Spencer S. Eccles Health Sciences Library case study

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INTRODUCTION

Noted anthropologist Margaret Mead stated: ''Never doubt that a small group of thoughtful, committed citizens can change the world'' [1]. Replace ''citizens'' with ''librarians'' and replace ''change the world'' with ''influence environmental issues,'' and Margaret Mead's wisdom can be reworded to serve as an impetus for changing the way libraries affect the environment. Librarians can seize the opportunity to become role models and influence our institutions to start or maintain the greening process.

Simply stated, ''greening'' is having more care for the environment. Greening is a process, as well as a state of mind, and it calls for taking action. Greening involves a spirit of reciprocity. We take care of the environment that takes care of us, cultivating a relationship with the natural world that sustains us.

Sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs. Practicing sustainability means using materials in continuous cycles, using renewable resources, and having less impact on the planet. Sustainable practices translate to caring for the environment.

Among the many greening issues for libraries include disposal of the following:
- packaging (cardboard, polystyrene plastic, plastic) from serials, books, software, computers, etc.;
- unneeded gifts;
- weeded materials;
- office paper waste generated from printing and copying;
- junk mail and printed email (Table 1);
- outdated computers;
- computer disks, CDs, and audiovisuals; and
- the normal waste stream of paper (Table 2), plastic, glass, food, cloth, and more.

Additional greening issues relate to the following:

- utilities—water, electricity, gas, heating, and cooling—and
- building and grounds.

CASE STUDY

The Spencer S. Eccles Health Sciences Library, a medium-sized academic library located at the University of Utah, is engaged in the greening crusade and is working to encourage sustainable practices on campus. This effort requires rethinking everything we do in light of sustainability principles and the six-Rs of recycling: rethink, reduce, reuse, recycle, repurchase/recover, and rejoice (Table 3).

In the beginning, recycling efforts at the Eccles Library were minimal and championed by individuals. Aluminum cans were collected and the traditional ''live'' Christmas tree was replaced with poinsettias, but that was the extent of it. The library threw away tons of unneeded materials (gifts and weeded materials), paper, cardboard, plastic, and polystyrene plastic. The same was true at other campus libraries and throughout the University of Utah. Recycling was not mandated at the University of Utah. No voluntary campuswide recycling efforts existed other than the University Surplus and Salvage program, where departments could send unneeded furniture, computers, equipment, and so on, for redistribution within and outside the university.

At a certain point in the mid-1990s, the University of Utah contracted with BFI, a local waste management company, to recycle newspaper, white computer paper, and aluminum cans. Unfortunately, many of the other kinds of materials in the library's waste stream were not included, and recycling remained optional.

In 1999, the J. Willard Marriott Library, the main University of Utah library, formed a Green Team and invited the health sciences and law libraries to participate. The Green Team provided an opportunity to discuss how the libraries could become more environmentally sensitive in their practices. Initial discussions identified gifts and weeding as the major recycling concern. The Green Team invited University Custodial Services and BFI to discuss this issue. During the meeting, BFI indicated that taking these materials was not economically feasible for them. However, we were not deterred.

During an Earth Day event, a local nonprofit recycling group put us in touch with the South Valley Training Company (SVTC) as a potential recycling partner. (SVTC is a sheltered workshop program that teaches work skills to and provides jobs for mentally and physically challenged adults.) The three campus libraries negotiated a contract with SVTC to pick up bound and unbound journals, catalogs, telephone books, junk mail, and cardboard, once every three weeks for a fee of $80. Now, the libraries were able to accept gifts with the understanding that if they were not incorporated into our collection, they would at least be recycled.

Table 1
Junk mail

☺ Destroys over 60 million trees annually
☺ Fills 3% of American landfills
☺ Creates 4 million tons of unnecessary waste
☺ Costs $320 million tax dollars for disposal
☺ Uses 28 billion gallons of water for paper processing
☺ 44% of all junk mail is thrown in the trash, unopened and unread

Source: Consumer Research Institute. Stop the junk mail. [Web document]. Consumer Research Institute, 2003. [cited 3 Dec 2003]. <http://www.stopjunk.com>.

Table 2
Recycling statistics: by recycling one ton of paper you save

☺ 17 trees
☺ 6,953 gallons of water
☺ 463 gallons of oil
☺ 587 pounds of air pollution
☺ 3.06 cubic yards of landfill space
☺ 4,077 Kilowatt hours of energy

Source: ATKIN R. New identities for recycled products. [Web document]. Christian Science Monitor, 2002 Apr 17. [cited 3 Dec 2003]. <http://www.csmonitor.com/2002/0417/p14s03-lihc.html#four>.

About the same time, library staff became aware of a Northwest Earth Institute (NWEI) discussion course on voluntary simplicity [2]. The course became the catalyst for taking further action. Every two weeks during lunch, we discussed how to lessen our impact on the environment at home and work. A second discussion course on choices for sustainable living followed and strengthened our organizational commitment to greening. As a component of each of the sessions, we spent ten minutes discussing library issues. Initially, we addressed the plastic packaging associated with new journal issues. A container for recycling plastic was placed near the journal check-in station. As journal mail was opened the plastic could be tossed into the recycling bin. Staff members voluntarily take the plastic home to recycle in the city's curbside recycling program. It was a small step with wider impacts. With consciousness raised, staff and students began more concerted recycling efforts at work and home. This small success gave us the confidence to explore other changes like providing a recycling bin for tin, plastic, polystyrene plastic, and aluminum containers in the staff lounge. We even put our coffee grounds and food scraps in containers stored in the freezer. Staff members take this waste home for composting.

Further actions taken as a result of our greening discussions were:
- setting up a recycling area for polystyrene plastic packaging,
- providing a container for collecting used batteries for proper toxic waste disposal,
- collecting and sending used CDs to a CD recycler,
- turning off computer monitors and office lights when not in use to save energy,
- encouraging staff to provide their own plates and utensils at library staff gatherings (staff picnic, holiday party, etc.),
- purchasing copy paper made from recycled paper,
- switching to recycled paper for printing library public relations materials,
- promoting campuswide and departmental recycling efforts,
- encouraging others to host the NWEI discussion courses, and
- spreading the word: through Earth Day activities, annual reports, poster sessions, and meeting presentations.

This bulleted list makes our greening efforts look easy, but a number of barriers were encountered along the way. For example, SVTC was a small company and eventually found it unprofitable to keep up with the volume of materials generated by the three campus libraries. In fact, they said they could only continue if they increased their fee by a factor of three. The libraries could not afford this cost, but our conscience would not allow us to ignore the long-term impact of filling up our landfills with paper waste. We discontinued the contract with SVTC. Everything could have collapsed at this point, but again we persisted. Discussions with friends and colleagues presented an alternative. We initiated discussion with Weyerhaeuser and negotiated an agreement that ended up costing us less than what we originally paid SVTC.

Additional barriers were related to money, time, space, and aesthetics. Cooperation with the other campus libraries addressed some of these barriers. The individual libraries alone could not have sustained the cost of this program. Neither the law nor health sciences library has enough storage space to hold large amounts of materials for recycling pickup. But the main campus library does and works with us to manage the overflow and to keep all areas looking presentable. Indeed the volume of the three libraries together (over 48 tons in the past 1½ years) made it worthwhile for Weyerhaeuser to consider a contract. A minimal commitment of staff time is required with recycling embedded into our daily routine. Weeding and gift-recycling responsibilities have been incorporated into a student assistant's job description. A member of the health sciences library staff serves as the primary contact with Weyerhaeuser, coordinating the program. The main campus library pays the bill, invoices the other libraries, and provides storage space and transportation for overflow.

SUMMARY

While recycling remains optional at the University of Utah, the libraries are creating change. As our case study

Table 3
The Six Rs

☺ Rethink: form a discussion group to reevaluate library practices
☺ Reduce: cut down, cut back, eliminate unnecessary purchases
☺ Reuse: use resources that are currently owned rather than purchasing new resources
☺ Recycle: negotiate a contract to recycle materials
☺ Repurchase/Recover: purchase used or recycled products
☺ Rejoice: celebrate successes

illustrates, becoming a green library takes commitment from individuals as well as the larger organization. It is an evolutionary process, starting small and building step-by-step. From cans in lockers, to recycling bins, to cooperative recycling efforts among three libraries on campus, to encouraging similar steps in other campus departments, Eccles Library has begun its greening journey. Time, money, space, and support challenges have been faced and met with innovative and collaborative solutions. With support from staff and library colleagues, we have made a significant impact on reducing waste, recycling discarded materials, lessening our impact on the environment, and celebrating our successful efforts to make a difference.

REFERENCES

1. INSTITUTE FOR INTERCULTURAL STUDIES. The Margaret Mead Centennial 2001: frequently asked questions. [Web document]. New York, NY: The Institute, 2001. [rev. 19 Nov 2001; cited 4 Apr 2003]. <http://www.mead2001.org/faq_page.html#quote>.

2. NORTHWEST EARTH INSTITUTE. Discussion courses. [Web document]. Portland, OR: The Institute, 2001. [cited 4 Apr 2003]. <http://www.nwei.org/pages/discussion.html>.

Evaluating digital delivery methods for women's health information targeting health professionals and students*

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INTRODUCTION

A multidisciplinary team of educators and technical information specialists conducted a demonstration project to evaluate a variety of digital methods for delivering unique women's health programming to health professionals and students. The project combined the outreach expertise of the Texas Medical Center Women's Health Network (TMC WHN) and the University of Houston (UH) System Distance Education CampusNet with the technical resources of KUHT, Houston's Public Broadcasting Service (PBS) affiliate, and the UH Office of Educational Technology and Outreach. In December 2002, the TMC WHN convened a panel of medical experts to discuss a ''hot'' topic in women's health. The program was digitally recorded before a live audience in the Houston Academy of Medicine-Texas Medical Center (HAM-TMC) Library. Post-production editing of the digital recording generated four video clips representing alternative formats for digital delivery of health information. A series of focus groups was held to allow representatives of the target audience to evaluate the effectiveness of formatting employed in the four video segments.

BACKGROUND

Health sciences libraries often serve as a common resource to facilitate self-directed learning, to conduct information research, and to support multimedia development [1, 2]. Since the mid-1990s, health sciences libraries have been increasingly concerned with creating and managing digital content [3–5]. Digital format has been touted as the future of biomedical communication [6], and this trend continues to grow as more and more resources are made available in digital form. In many colleges and universities, health sciences libraries have assumed an active role in curriculum development by providing direct support for faculty members who are developing Web-based educational content [7]. The advent of these digital resources ''comes at a time when there is a growing realization in educational circles that learning needs to be active,

Table 1
Video clip format summary

Video clip	Format summary
Video clip 1	Provides a live recording of oral introductions and a portion of each panelist's presentation with minimum post-production editing. Includes original PowerPoint slides detailing panelists' topics and credentials.
Video clip 2	Shows re-taped oral introductions with a few minutes of first speaker's presentation with moderate reformatting. Includes title slide appearing on a background of clouds, accompanied by background music. Speaker is framed in lower right corner, while PowerPoint slides appear in upper left corner.
Video clip 3	Depicts revised introduction of the last speaker followed by musical segue to speaker's title slide. Title slide remains on screen, while panelist begins speaking. PowerPoint slides are incorporated into speaker's presentation
Video clip 4	Shows only text outline taken from second panelist's PowerPoint slides. Text scrolls over cloud-like background. Speaker's voice can be heard, but image does not appear on screen

self-directed, collaborative, and situated in real-life'' [8]. Although research has been conducted to evaluate Website design [9–11], little work has been done among health sciences librarians to assess the most effective format for digital content delivery.

PURPOSE AND GOALS

This project was designed to compare various formatting options for digital delivery to best match the information needs and learning styles of health professionals. Results of the project will be applied to developing the Texas Archive of Women's Health, a digital women's health archive that will be cached on the Texas Public Broadcasting Educational Network (TPBEN) server to disseminate women's health learning objects to statewide PBS stations and affiliated colleges and universities, including medical, nursing, and allied health programs at the colleges and universities. Ultimately, these women's health learning objects can be migrated to the Web to allow for broader distribution. The Web-based resources will be used to support various educational endeavors ranging in nature from formal academic programs to community-based consumer health initiatives.

METHODS

Digital recording

On December 17, 2002, the TMC WHN convened a panel of medical experts to discuss the topic of hormone replacement therapy (HRT) for menopausal women. The program, titled *Magic Bullet or Trojan Horse: What Do We Know Now about HRT?*, featured five panelists from the fields of internal medicine, gynecology, nursing, and cardiovascular research. After introductions, the panelists spoke for eight to ten minutes using their own individually prepared PowerPoint slides.

The physical setting for the program consisted of a makeshift ''studio,'' an alcove in the street-level area of the HAM-TMC Library. The room arrangement duplicated the setting for live panel discussions commonly used in programs for health professionals: panelists were seated behind a long cloth-covered table, with a tabletop podium at one end supporting a laptop computer. A free-standing projection screen positioned perpendicular and to the right of the table was

used to project PowerPoint slides to members of the audience, which included approximately twenty-five members of the TMC WHN. The backdrop for the speakers was a windowed wall with closed miniblinds. As the program was held after dark, daytime lighting was not an issue. Lapel microphones were passed between speakers as they approached the podium. The panel session was captured using digital recording equipment, consisting of robotic cameras, a video switcher, and audio equipment.

Post-production editing

During January to March 2003, a UH videographer, working with UH communications students, viewed the raw digital recording and made initial editing recommendations. As a result, the panel introduction was rerecorded. Subsequently, the videography team prepared four brief video clips illustrating distinctly different methods for presenting pertinent information. Each video clip did not duplicate content in its entirety from the other video clips but presented pertinent information in a different digital style (Table 1). In brief:

■ Video clip #1 (9.24 min.) shows the oral introductions and a portion of each panelist's presentation as recorded live, with a minimum of post-production editing. As the panelists' credentials are described, their still images appear in the lower right corner of the screen. The panelists' first slides list their topics, names, degrees, and affiliations. During each speaker segment, the view switches between the speaker and the slides. Each PowerPoint file employs a different layout and background.

■ Video clip #2 (3.87 min.) shows the oral introductions as re-taped and a few minutes of the first speaker's presentation with moderate reformatting. After the introduction, the first speaker's title slide appears on a background of clouds, accompanied by a brief riff of background music. During her segment, the speaker is framed in the lower right while her PowerPoint slides (original version) are framed in the upper left.

■ Video clip #3 (1.42 min.) depicts the introduction (revised version) of the last speaker, followed by a musical segue to that speaker's title slide. The title page remains on screen as the panelist begins speaking. The view cuts to the speaker, who addresses the audience directly and informally for a few minutes before her formal discussion (incorporating PowerPoint slides)

begins. The segment ends before any slides (other than the title page) can be seen.

■ Video clip #4 (0.49 min.) shows only the text outline taken from the second panelist's PowerPoint slides. The text scrolls over a cloud-like background. The speaker's voice can be heard, but her image does not appear on screen.

Evaluation process

After viewing the four video clips, project staff developed a two-part evaluation form. Part 1 of the form requested weighted responses based on six specific criteria:

■ The video clip is comprehensible.
■ The audio portion is clear and understandable.
■ The video portion is clear and pleasing.
■ The electronic slides are beneficial.
■ The information presented is clear and useful.
■ The recording is a useful educational tool.

Possible responses to each query included: strongly agree (weighted with a score of 5), agree (score = 4), neutral (score = 3), disagree (score = 2), and strongly disagree (score = 1). Part 2 of the evaluation form requested narrative comments about the relative strengths and weaknesses of each video clip and ways it could be improved.

Three focus groups were convened to allow a total of seventeen evaluators representing the target audience of health professionals to view the four video clips and complete evaluation forms for each. Focus group participants were selected based on their experience with digital resources, both as professionals and end users. The first focus group consisted of three medical librarians who viewed the taped segments and completed evaluations. The second focus group included four medical students enrolled in a women's health elective. The third group consisted of ten doctoral-level nursing students, many of whom were instructors in undergraduate nursing programs.

RESULTS

Tabulations of weighted scores and narrative comments were analyzed. In brief, these scores showed:

■ Video clip #3 received the highest overall ratings from all evaluators (composite 4.2/5.0). This video clip also garnered the highest ratings on five of the six rating scales (The clip had no PowerPoint slides, hence no rating for whether the slides were beneficial.) Use of PowerPoint slides was considered most beneficial in video clip #1.

■ Video clips #1 and #4 received the lowest composite score (3.6/5.0 for each). These two clips were also rated lowest for usefulness as an educational tool.

■ Video clip #1 received the lowest marks for comprehensibility, audio quality, and visual clarity.

■ Evaluators found PowerPoint slides beneficial for all of the video segments that included them (clips #1, #2, and #4).

In the narrative comments, evaluators referred most often to technical characteristics of the video clips, the inclusion and formatting of the slides, and the apparent expertise of individual speakers. Several found the musical segues and background "unnecessary," "annoying," or "sleepy." The revised introduction taped in an office setting was regarded as preferable to the same information presented in the makeshift studio.

As a result of the weighted scores and narrative comments provided by evaluators, a final digital version of the entire program (approximate length 55 minutes) has been prepared, with the following post-production modifications:

■ The revised introduction has been patched into the beginning of the program.

■ All PowerPoint files have been reformatted with a standardized background, font, and point size.

■ For the panelists' presentations, their close-up images float over the lower righthand corner of the PowerPoint slide under discussion. The makeshift background has been largely blacked out.

■ The audio portion of the complete program has been cleaned to eliminate background noise as much as possible.

■ Musical backgrounds and segues, as well as artistic visual enhancements not relevant to program content, have been eliminated.

■ Written credits acknowledging the contributions of all participants have been attached at the end of the program.

CONCLUSIONS AND RECOMMENDATIONS

Lessons learned through this demonstration project will be applied to selecting and producing digital learning objects for the Texas Archive of Women's Health. Observations to date include:

■ Health professionals prefer focused, content-dense learning objects. Nonessential elements such as artistic effects and musical segues are perceived as undesirable additions.

■ The physical arrangement for panel discussions common to "live" meetings for health professionals does not translate well to digital programming. The usual setting (a long table for seated panelists, a podium, a projection screen to the side, etc.) appears distractingly artificial and stilted when viewed on screen. If the goal is to capture live presentations to preserve an archival record, new approaches to coordinating presentations by multiple speakers, who provide their own slide files, must be developed to take advantage of digital formatting options, such as originating the program in a studio with an appropriately controlled environment.

■ On-screen outlines, combined with a speaker's image and voice, effectively communicate key data as well as context clues that demonstrate the speaker's expertise.

■ Technical equipment should be arranged, so that speakers look into the camera, even when a live audience is present.

■ Control of background, lighting, and audio is essen-

tial for the production of high-quality digital programming. Makeshift settings lacking these qualities cannot provide suitable environments for digitally recorded productions.

Ultimately, the digital learning object developed for this project will be further subdivided, indexed, and migrated to the Web. Health sciences libraries are increasingly involved in developing and managing these types of digital resources. As data casting of digital learning objects becomes ever more common to support communications among health care providers, educators, researchers, and the community at large, it seems only logical that opportunities for health sciences libraries to expand their roles in this arena will continue to grow.

REFERENCES

1. DUNCAN JM. The information commons: a model for (physical) digital resource centers. Bull Med Libr Assoc 1998 Oct;86(4):576–82.
2. GREGORY JMM, LE BER JM. InfoFair: an annual computer and information event. Med Ref Serv Q 2002 Spring;21(1):1–24.
3. LUCIER RE. Building a digital library for the health sciences: information space complementing information place. Bull Med Libr Assoc 1995 Jul;83(3):346–50.
4. SHEDLOCK J, BARKEY DC, ROSS F. Building the electronic health sciences library for the twenty-first century: the Galter Library experience. Med Ref Serv Q 1996 Winter;15(4):1–12.
5. KRONENFELD MR, HEBERT F. Electronic ''library without walls'' in a hospital library. Bull Med Libr Assoc 1997 Apr; 85(2):198–201.
6. ERHARDT-DOMINO K, PLETCHER T, WILSON W, ATKINS D, PANKO WB. The Internet: will this highway serve the digital library? Bull Med Libr Assoc 1994 Oct;82(4):426–33.
7. DUNCAN, op. cit.
8. D'ALESSANDRO MP, GALVIN JR, ERKONEN WE, CHOI TA, LACEY DL, COLBERT SI. The virtual hospital: experiences in creating and sustaining a digital library. Bull Med Libr Assoc 1998 Oct;86(4):553–63.
9. HENNER TA, CHARLES P. Using focus groups to guide development of a public health web site. Med Ref Serv Q 2002 Winter;21(4):15–22.
10. NORMAN F. Digital libraries—a quality concept. Int J Med Inf 1997 Nov;47(1–2):61–4.
11. D'ALESSANDRO MP, D'ALESSANDRO DM, GALVIN JR, ERKONEN WE. Evaluating overall usage of a digital health sciences library. Bull Med Libr Assoc 1998 Oct;86(4):602–9.

Using an automated knowledge agent for reference and customer service

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INTRODUCTION

Knowledge agents are software tools that sift through data to retrieve answers to questions. These agents may take many forms, including verbots, chatterbots, and intelligent agents. They have character and personality and reply to natural language inquiries. Agents ''learn from their mistakes'' and ''grow smarter'' when their programmers review failed interactions between the customer and the agent and then script correct responses [1].

One of the earliest automated intelligent agents was Eliza [2]. Eliza employed natural language processing to ask users questions and used those answers to create subsequent questions. Eliza was championed as a computer psychiatrist, and some users said they could not tell the difference between Eliza and a human. Today, some companies use similar technology to provide customers with the answers to their questions. These agents are known as automated customer service agents or virtual representatives.

Last year, the National Library of Medicine (NLM) received 34,500 email questions. Many questions were repetitive and easy to answer, such as ''Where are you located?'' To provide customers with a self-service alternative for finding answers, the library developed an automated customer service agent, using software from NativeMinds.

METHODS

In 2001, there were few automated agent software vendors, and NativeMinds was the only identified product that integrated with other NLM customer service software. Reference librarians began by writing a ''job description'' for the agent. The automated agent was to answer fundamental questions about NLM products and services that had existing Web pages with more information. Initial responses for the agent to use would be scripted from the Frequently Asked Questions NLM Website. In addition, the service would be integrated with the MEDLINEplus health topics and drug databases.

NativeMinds uses a proprietary language called Neuroscript, a variation on Java-enabled C++. Natural language processing identifies key concepts and dis-

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Figure 1
The Ask Cosmo Web page
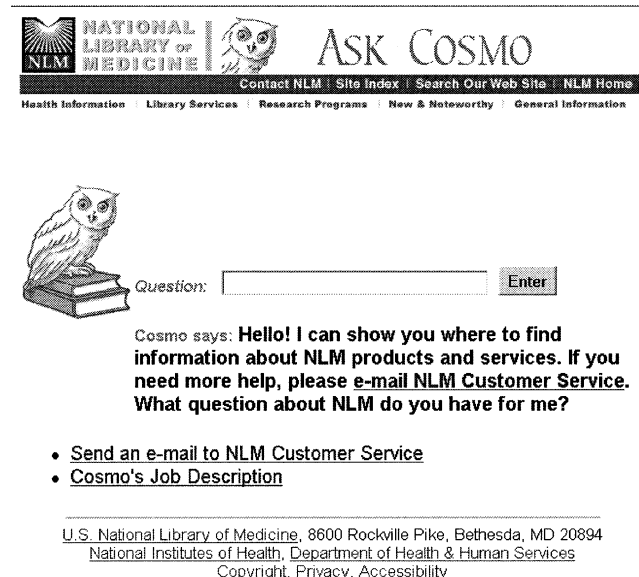
cards irrelevant information. Pattern matching lists help identify all the possible ways the same type of question might be asked (e.g., What are your hours? When do you open? Are you open on weekends?) When the pattern category is recognized, the software triggers a scripted answer and appropriate hyperlinks.

Reference librarians reviewed customer service question logs, identified common questions, scripted pattern lists and categories, and wrote responses to questions they thought were most likely to be asked. The agent was given the name Cosmo (Customer Service M. Owl) and was graphically represented by an owl. Staff members were encouraged to ask Cosmo questions, so reference librarians could script responses to questions it was unable to answer before public release. Scripting, testing, and auditing of the agent continued, and Cosmo was placed on the external Contact NLM Customer Service Web page† in February 2003 (Figure 1).

RESULTS

The service now includes more than 900 answers to common questions. Cosmo continues to "learn" as librarians review questions and script responses for appropriate customer questions that were not answered or were answered incorrectly.

In April 2003, users asked the agent 466 questions. Cosmo answered 51% of these questions correctly and 22% incorrectly, 20% were out of scope for the agent's job description, and 7% were out of scope for NLM. Of the questions within the agent's job description (n

† Cosmo may be viewed on the Contact NLM Customer Service Web page at http://www.nlm.nih.gov/contacts/contact.html.

= 340), Cosmo answered 70% correctly. The agent answered questions such as:
- Where is NLM located?
- How can I license UMLS?
- What is azithromycin?

The agent could not answer questions such as:
- Can you help me with a search strategy on drugs for treating the types of cognitive dysfunction in the elderly? (too complex)
- Who was the third president of the United States? (outside the scope of NLM)
- What is the history of the NLM associate fellowship program? (no existing Web page)

The automated agent was initially placed at the bottom of the Contact NLM Customer Service Web page, which required the user to scroll down the page to use it. Because the agent "learns" from its mistakes and mistakes can be embarrassing, it was necessary to test and carefully review the agent's performance before moving it up on the page. In May 2003, the agent was moved so it could be used without scrolling.

Some users assume Cosmo is just another search engine, but it has key differences. Cosmo's purpose is to provide specific answers to specific questions and not simply lists of hyperlinks to possible answers. Cosmo works best when the user asks for information in the form of a question rather than simply entering a string of search terms. Scripting was done with the public in mind. Librarians are generally not the primary target user group, as they possess advanced searching skills and are adept in dealing with the limitations of search engines.

This service is available at all hours, provides immediate and consistent responses to questions, relieves boredom for humans from answering repetitive questions, has the potential for cost savings, and refers more difficult questions to human agents when a personal response is needed. In addition, the service is helpful when the Website search engine yields too many results. Finally, the automated agent is sometimes used for sensitive health questions a user might not want to ask a reference librarian.

DISCUSSION

NLM's automated agent, Cosmo, is performing acceptably. Continuing evaluation will determine whether the product continues to meet NLM's objectives. Questions to be answered include:
- How many Website visitors use the agent?
- What percentage of interactions escalates to telephone or email customer service?
- What questions do clients ask most often?
- How much of the knowledgebase is used?
- Based on client questions, are there other databases that should be integrated?
- What is the total cost of the service?

Future usability testing will help determine optimum appearance of the Web page. The Customer Service Contact NLM page now provides several options to assist users in finding what they want on NLM's Website and good guidance on how to contact NLM if they need help.

CONCLUSION

It is unlikely intelligent agents will replace reference librarians. An automated agent does not know how to help a user who does not know what question to ask or how to phrase a question. Even with investments in scripting and management, this agent answers half the questions it is asked, leaving the rest to be answered by humans. However, having an added choice for customer service that is available at all times of the day and night and can answer basic, repetitive questions can benefit both clients and librarians. The real value of the agent is in providing answers rather than listing hundreds of hyperlinks that might answer a question. From the perspective of quality filtering of information and managing information overload, intelligent agents may be very useful.

ACKNOWLEDGMENTS

REFERENCES

1. MURCH R, JOHNSON T. Intelligent software agents. Upper Saddle River, NJ: Prentice-Hall, 1999.
2. WEIZENBAUM J. ELIZA—a computer program for the study of natural language communication between man and machine. Communications of the ACM 1966 Jan;9(1):36–45. (Available from: <http://i5.nyu.edu/~mm64/x52.9265/january1966.html>.)

Confronting the challenges of HIV/AIDS information dissemination: report of the one-day HIV/AIDS Information Summit

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‡ The Defense Logistics Information Service Website may be viewed at http://www.dlis.dla.mil:4080.

INTRODUCTION AND MISSION

The Pacific Southwest Regional Medical Library (PSRML), one of eight regional offices of the National Network of Libraries of Medicine (NN/LM), in cooperation with the California AIDS Clearinghouse (CAC), sponsored a one-day HIV/AIDS Information Summit, which was held at the University of California, Los Angeles (UCLA), on March 19, 2003. The idea for the summit developed from the natural partnership formed and the mutual interest shared between CAC and PSRML to address information needs of the AIDS community. The summit was initially conceived as a forum for various groups involved in HIV/AIDS information delivery to share concerns and develop action plans to address unmet information needs. Details about the summit, including online registration procedures, were posted to the event's Website,* as they became available. The summit's Website also includes links to Webcasts of most portions of the program, as well as links to all electronic slide presentations, meeting notes, handouts, photographs, and graphic recordings of the event.

PLANNING PROCESS

A steering committee, chaired by a librarian, was formed to plan the summit. The group included six additional members representing academic-based AIDS programs and AIDS services organizations. The committee met in person on August 27, 2002, to begin planning the format and content of meeting sessions and developed the following mission statement for the summit: ''To define common challenges and identify potential strategies to improve the coordination and electronic dissemination of accurate and current HIV/AIDS information.'' The steering committee also decided to use the services of a graphic recorder, who colorfully captured the content of the plenary session and group reporting session on large charts, or ''road maps.'' Planning efforts were completed through monthly teleconferences and electronic mail communications.

Publicity for the summit was widely distributed by email to HIV/AIDS surveillance contacts in all California counties and was posted on the CAC and California Department of Health Services Office of AIDS/HIV Epidemiology Websites. In addition, the health sciences communities at the University of California campuses and numerous community-based AIDS organizations were notified. Approximately 120 people attended the summit on March 19, 2003. Most of the attendees were from California, several delegates were from Arizona and Washington, and representatives from several other states and the National Library of Medicine attended as well. The majority of attendees were representatives from community-based organizations and municipal public health departments. A

* The HIV/AIDS Information Summit Website may be viewed at http://nnlm.gov/psr/aids_summit.html.

number of health sciences librarians, graduate students from the UCLA School of Public Health, and other academics also attended. Two laptop computers were set up in the meeting room, so that participants could check their email or look at Websites of interest during the day. The room set-up also included a ''sharing table,'' because a number of the attendees brought their organizational literature for distribution to summit participants.

The plenary session featured two keynote speakers: Gail Wyatt, UCLA AIDS Institute associate director and professor of psychiatry and biobehavioral sciences, and Larry Peiperl, director of the Center for HIV Information at the University of California, San Francisco, AIDS Research Institute. Issues highlighted by the keynote speakers included quality and accessibility of HIV information on the Internet and the impact of sexual practices and attitudes in various ethnic groups, such as African Americans, on the AIDS epidemic. In addition, the plenary session included six panelists, most of whom were librarians, who addressed specific aspects of HIV/AIDS information dissemination, such as the evaluation of Internet sites, maximized Website visibility, and National Library of Medicine HIV/AIDS resources.

As part of the registration process, applicants were asked to describe what the challenges were that they faced in accessing and disseminating accurate and current HIV/AIDS information and what they hoped to gain by attending the summit. Based on the responses to these questions, the steering committee developed a series of discussion topics for four breakout groups, each composed of roughly thirty people, which met briefly before the luncheon to begin the brainstorming process. The luncheon was held on a patio adjacent to the meeting room, so that participants could continue their networking and brainstorming, if they chose to. The breakout groups then met more extensively during the afternoon portion of the summit for discussion and synthesizing of the breakout topics. One facilitator and one recorder were assigned to each group, and each group was asked to develop three to five specific recommendations for future outreach efforts and information dissemination related to HIV/AIDS information as a result of their sessions. After the breakout group meetings, the large group reconvened to hear reports and recommendations from each group, as well as any insightful messages that were revealed during the discussions.

RESULTS AND RECOMMENDATIONS

Breakout group 1 examined issues related to handling HIV/AIDS information overload, disseminating information sources with the right messages, and developing electronic safer sex messages. Specific action items recommended by this group included:

- develop organizational collaborations to avoid duplication of efforts and
- ensure that information sources selected for dissem-

ination are understandable and sensitive to the target population's culture.

Breakout group 2 looked at the issues of developing strategies for increasing coordination and collaboration with Websites, accessing online full-text journal articles, improving information dissemination to rural areas, and developing a centralized HIV/AIDS information databank. Another issue of interest to this group was archiving mechanisms to preserve links for Web materials related to conferences. One suggestion from this group was a ''Consumer Report'' user guide that would provide the flavor of a Website before linking to it and would help define standards for reviewing Websites in a consistent manner. The group also suggested that libraries use a sliding-fee scale to provide interlibrary lending services, so that lesser-funded rural organizations and community-based organizations could more easily afford to access information. Recommendations for next steps from the group included:

- a working group, sponsored by the National Library of Medicine, that would determine the important characteristics needed for an HIV/AIDS Website and ways to cope with information overload;
- a request for proposal, from the National Library of Medicine, to conduct an evaluation of HIV/AIDS Websites or to sponsor a study examining what people did with HIV/AIDS information obtained from the Internet after turning off their computers; and
- further training for health sciences librarians in accessing HIV/AIDS information sites, beyond what is provided by the National Library of Medicine.

Breakout group 3 focused on the issues of identifying current and accurate HIV/AIDS information sources, avoiding the distribution of misinformation to served populations, and sharing strategies and networking to provide accurate information. The group also discussed electronic safe sex messages. Specific recommendations from the group included:

- disclose the limits on data and make clear that some numbers are estimates when releasing information to the public;
- determine if locally relevant statistics were available from a city or county health agency, because all organizations could make use of and distribute good-quality, camera-ready material housed in a central location; and
- report trends in data rather than specific numbers.

Breakout group 4 examined the issues of providing HIV/AIDS information to hard-to-reach groups, such as youth and communities of color; providing HIV/AIDS information to developing countries; disseminating reliable HIV/AIDS information to consumers; and determining the best medium to disseminate HIV/AIDS information. Recommendations for further actions from the group included:

- use mobile computers on vans that would travel to hard-to-reach population centers;
- create an HIV/AIDS interactive tutorial for MEDLINEplus; and
- create more HIV/AIDS instructional videos.

FEEDBACK AND CONCLUSIONS

Feedback from the summit participants was extremely positive. A number of attendees expressed their gratitude for the convening of such a meeting and said the opportunity to have an entire day to meet and network with colleagues was invaluable. All summit participants were asked to complete an electronic evaluation survey through a Website shortly after the event. On the whole, all speakers were judged to be effective, expectations for the day were met, and attendees agreed that they felt better prepared to meet the challenges associated with HIV/AIDS information. The survey also asked attendees for comments about which parts of the summit they found most and least helpful. These comments indicated that many of the attendees planned to implement some of the recommendations into their daily work flow. A number of attendees also expressed the desire to attend similar events in the future. However, some of the summit participants felt that the topics covered during the plenary session were not relevant to them, or were already common knowledge.

Funding for the summit was provided by PSRML, through its NN/LM contract with the National Library of Medicine. CAC provided support in organizing and promoting the meeting. The planning budget for the summit included funding that was sufficient to cover the travel and lodging expenses of the participants, if needed, which provided a great incentive for attendance and contributed to the success of the meeting. Many of the participants would not have been able to attend the summit without the financial support they received. It was money well spent, because the connections made that day and the dialogue that began will most likely continue to have a positive influence on the effective dissemination of HIV/AIDS information.

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The following figure was omitted from BAKER LM. Information needs at the end of life: a content analysis of one person's story. J Med Libr Assoc 2004 Jan;92(1):78–82.

Figure 1

Conceptual model for discussions of end-of-life issues